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ABSTRACT

This discussion and critique of television programs used in two courses--D102 (vandalism) and M101 (mathematics)--at the British Open University suggests that the television presentation of real life-like raw material can facilitate the comprehension of abstract material inasmuch as it provides concrete illustrations, and provides an opportunity to exercise relating the abstract idea to actual daily instances. It is noted that such comprehension is improved by the use of clear messages and a balance between words and pictures. It is suggested that television employs three means of providing comprehension through visual images--illustration, dramatization, and supplantation--and these three modes of presentation are illustrated by examples from the television programs for the courses. (EW)

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# Using Television As a Unique Teaching Resource for OU courses

- comments on some television programmes designed for D102 and M101 -

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Comments on some television programmes designed for D102 and M101.

G. Salomon

## Introduction

The purpose of the comments is not to criticise anything (nothing easier than that, given the fact that I'm a sideline observer equipped with the wisdom of hindsight...). Rather, one can become a bit clearer about the psychological and instructional functions of TV and its potentially more and potentially less promising usages from an impartial examination of particular programmes. This then is my purpose, based on the assumption that comments on one set of programmes can be useful in the design, production and evaluation of another.

## 1. Accomplishing a unique function

Research quite clearly shows that television on the average can teach no less well than other methods. This, however, would hardly justify the costly use of TV, save for when it serves a distribution function or as a lever for the introduction of large scale reforms. The important question is when can TV be made to yield learning results of one kind or another which are better (or faster, or less expensive, or more lasting, etc.) than what viable alternatives can yield. Research and theory in the area suggest that such desirable advantages could be expected when (a) one makes use of some relatively unique attributes of the medium, (b) thereby accomplishing a relatively unique psychological function that is (c) relevant for the attainment of a desired outcome.

A case in point in the D102 programmes on vandalism are the interviews with the three youths after they are shown to vandalise the telephone booth. Television is used here to provide a semi-first-hand look into the (rarely verbalized) world of these youth. The student is given the unique opportunity to feel as if s/he is "with" the youths, attending to their subjective accounts of the events. As in good theatre, one knows that events are staged and verbal accounts are rehearsed, yet one is willing to experience the observed as if one is part of it. To the extent that one of the programmes' objectives is that the students understand the many-sidedness of vandalism, the interviews serve a unique and relevant function.

Compare these interviews with the ones coducted with social scientist, particularly those in the fourth programme ("Questioning Assumptions"). In these interviews most, in fact all, the relevant information is abstract, lacking any clear concrete referents. While the information presented may be important from the perspective of the course material, the medium of TV is incapable of accomplishing any unique function here. If anythng, it makes comprehension difficult as the student can neither control the pace of the short lecturettes, nor can s/he stop the flow of the material to relate it to real life events. It seems that these interviews demand of the students greater effort investment than a comparable text, putting the less prepared slow learner at a relative disadvantage.

The comparison between the two kinds of interviews highlights another point. Television, for its visual emphasis, viewers' expectations for visual action, its "crowdedness", and its fleeting nature, is apparently well suited to impress and create "bushy" networks of associations. It is less well suited to facilitate learners' semantic analysis of abstract verbal messages. Print material is better suited to serve such functions. It appears to me that the interviews with the three youths allow the student to look into something otherwise inaccessible and be impressed by it.

The learning objective is attained by the first-hand impression which the programme affords, not the specific semantic comprehension of any abstract talk. Not so in the case of the scientific interviews: the student needs to comprehend them rather than be impressed by them. But since semantic elaboration of abstract theses can not be served well by a medium better designed for fleeting visual action, not much learning can be expected to take place.

## 2. Analysis of Undifferentiated Wholes

Social events, in fact all real life phenomena, arrive at our senses quite undifferentiated (or "unpunctuated"). The observer is the one to "punctuate" the events, analyse them, select out of them particular elements, and discern specific patterns on the basis of his or her available and accessible knowledge. This is no simple process, and it is made particularly difficult when (a) the observer is untrained in carrying these activities out (s/he is used to look at the events "holistically"), (b) the concepts to be used for the analytic process are new, and (c) the observer has not been sufficiently well prepared ahead of time (i.e. s/he doesn't really know what s/he is to focus on, or what pattern s/he is to discern).

The presentation of real-life like events on TV with the hope that the student will eventually select out particular patterns, hitherto unnoticed by him or her, or with the purpose of using them as raw material for his or her analysis, can easily fail to serve in such capacities due to either one of the three conditions mentioned above. Moreover, the emotionally compelling nature of the dramatised events on TV as well as their rapid pace can easily hinder the student's attempts at carrying out the acts of focussing, analysing or discerning patterns, unless these processes are done for the student explicitly.

A case in point are the office and vandalism sequences in D102-1 as compared with the sequence on wage increases in D102-7. In both cases real-life like events are presented as raw material from which either the rule-governed pattern of behaviours (D102-1) or the incompatible nature of arguments (D102-7) are to be discerned. In both cases the dramatised events can be assumed to be familiar to the students, and in both cases students are expected to apply new concepts and ideas in the analysis of the raw material presented. But this expectation is a bit too optimistic: the concepts to be applied are relatively new, the sequences presented are appealing and involving (one does not need to analyse them to be impressed by them), and the students do not have enough of a conceptual "lead" to succeed in the analyses. It appears that they need not only an introduction, a written explanation and visually appealing raw material; they need explicit guidance in carrying out the task.

There is a large difference in the way this is actually done in the two sequences. In the office sequence the students are left on their own to discover formal and informal rules with very little guidance, provided either as advanced organizers or during the presentation. When the sequence is analysed on the screen, the analysis does not pertain to rules, thus leaving it to the student to "discover" the hidden rules that guide office and party behaviour. The wage increase sequence, on the other hand, uses a rather unique technique and can be expected to facilitate learning.

First one sees the whole sequence, but then it is shown again with each sentence presented as a separate entity, which is then explained and elaborated upon. In this sequence the process of "punctuation" and analysis is done <u>for</u> the students in an explicit way. One can expect the students not only to comprehend the material better from the analysis which they would be unlikely to carry out on their own, but to also become better in analysing similar materials without additional guidance or overt "supplantation" in the future. It is a matter of repeated "supplantation" which is gradually removed such that the student is given increasingly more independence.

The guidance given can be ordered along a scale of explicitness. First, the actual analysis (or focussing, or discerning of a hidden pattern) is done for the student such that s/he can repeat the process on his or her own (e.g. pointing out some of the rules while the behaviours are seen). Less explicit is the method whereby the student is given clear initial instructions of what and how to do with the raw material (e.g. "try to identify at least one underlying rule that all people in the sequence appear to follow"). This might be followed at the end of the sequence by the narrator's answer to the same question. Even less explicit a mode is when the student is only told what to look for, is given an example how this can be done, and is then left on his or her own. It needs to be noted, however, that a mode with so little explicit guidance can be used only when the learner is already familiar with the material, experienced with analysis, and well prepared, that is - when the purpose of a programme is to rehearse and summarise already learned and analysed material.

The case can be generalised as follows. The televised presentation of real-life like raw material can facilitate the comprehension of abstract material inasmuch as it (a) provides concrete illustrations and (b) provides an opportunity to exercise relating the abstract idea (e.g. "behaviour is rule governed") to actual daily instances. However, for an event to be understood as an illustration one has to see how the abstract idea or concept is manifested in the specific instance. This is not self evident. Nor can it be left to the student. Similarly, before one can exercise relating an abstract idea to daily events, one needs to be shown how this is done. And TV can accomplish this function well.

## 3. Clarity and unclarity of messages

It is of course a truism that messages, particularly messages designed to instruct, should be as clear as possible, that is - leave little uncertainty in students' minds. However,

contrary to popular wisdom according to which the very use of TV facilitates clarity of messages, this medium can easily blur messages and arouse uncertainty. There are two major reasons for this. First, unlike pictorial messages, verbal messages can be highly specific and accurate in the sense that (a) language is a notational symbol system in which there is a semi one-to-one correspondence between a discrete symbol ("table"; "higher than") and a referent (the actual object or relationship), (b) it is a symbol system with a fairly rigid grammar, and (c) it's a system that can easily eliminate possible alternatives ("please give me the third, black, square object on the right, five inches from your left elbow"). Verbal messages can focus one's attention on highly specific aspects of a phenomenon (I'd rather write my comments than draw them..!), thus leaving little uncertainty to the listener.

The visual-pictorial aspects of TV do not have such clear uncertainty reducing potentialities. Although it's often believed that "a picture is worth a thousand words", the exact opposite is often the case. Pictures are "dense" and "replete" with no clear relationship to referents. It is for this reason that pictures need titles or verbal narratives to make them clearer.

The second reason why TV stands in the way of clarity is that its messages are often composed of discrete units, in a mosaic-like fashion (a film sequence, a brief lecture, a discussion, repeat of film segments, graphs, etc.), thus possibly arousing uncertainty as to the way these units are interrelated. The movement from narrator to film, then to an academic lecturette, another film, etc. is in fact an invitation for unclarity. Indeed, while each programme sub-unit can be clear and easily understood, the message of the whole sequence may become poorly understood.

Loss of clarity in multi-segment programs can result from two factors: (a) rough "bridges" between segments that should have "run into each other" smoothly (see for example D102-3) or (b) "smooth" connections between segments that should have been

kept separate with clear demarkations between them (see for example M101-1 or D102-2)..

We know it from much research on learning from various media and sources that if differently-appearing elements are to be perceived as related to each other then this relationship needs to be pointed out explicitly. Moreover, the appearance of the elements or sequences needs to be similar in some visible way (same background, same narrator or presenter who bridges between the segments verbally). On the other hand, if clusters of segments are to be kept separately (as for example in M101-1 where a new topic is brought up too fast, possibly misleading the viewer to believe that the new topic is in fact just a continuation of the preceding one), then clear demarkations in the form of a new intro, a different setting, new presenters, and the like, are called for.

## 4. Words, Words, Words

I find one common denominator to the programs I have seen: they are heavily loaded with speech. In a number of instances (e.g. D102-7 or D102-9) the programme is dominated by "speaking heads" such that the concepts to be learned (e.g. various statistics; "interaction") are difficult to grasp and to understand.

Television's uniqueness lies in its potential to visualise the abstract (see #5 below for a more detailed discussion), to provide contrived images that present in visual form the very concepts and relations for which the students cannot conjure up images on their own. Too much talk in programmes comes at the expense of the visual presentation and may often lead to poorer learning than a comparable text or tapes.

Consider by way of an example D102-9. The verbal discussion of various alternative explanations on TV can hardly be expected to accomplish a cognitive function that differes from the one accomplished by, say, a combination of audio tape and text. When the conclusion is reached in the program that the more suitable answer is the interaction between factors, one would want to see what an interaction is. The term, so central in the social sciences, needs to be well understood. Such understanding can be facilitated by proper dynamic images. But the students - having all kinds of anecdotal associations to the term - need to be given such an image. The same applies to D102-8 where large quantities of statistical data are verbally presented with only a few visual illustrations, most of which need verbal explanations to be understood. Students are surely not expected to remember the actual figures, but the gist of the argument. If one wants them to comprehend and retain the idea of interdependence between the factors that lead to a crisis, (a concept that is not intuitively understood) then that concept should be central to the programme and utilize most of its broadcastintg time.

There must be a clearer division of labour between TV and the other media. Considering the cost of TV programmes, it is reasonable to let them do what they do best - visually illustrate, dramatise, concretise and supplant dynamic images without which concepts like "relative depreciation" or "interaction" cannot be well understood. Lectures on TV, on the other hand, have not been found to be more effective than an audio tape plus text.

## 5. The unique visual potentials of TV

The visually unique (or at least relatively unique) potentialities of TV can be divided into 3 kinds: illustration, dramatisation, and supplantation.

(a) illustration: When a specific instance is shown as a representative of a class of similar events, or when a specific act is shown to stand for a more general process (as an example), illustration is involved. The unique attributeof an illustration is that it is a private case, hopefully a typical one, of a relatively abstract class or category. It is neither a model of the general case nor a dramatisation of it. It is just a presentation of a single case representing the general class. An example of an illustration is in M101-1 where students are shown when the use of mathematical symbols is appropriate. The aggressive behaviour of the three youths in D102-1, or the altruistic behavior of some skin-heads in the crashed train (D102-3) are other examples of illustrations.

Illustrations are very helpful as examplifiers of a general idea, concept or process. But the often overlooked difficulty in using them is that the relationship between the general or abstract case and the illustration is not always self-evident or self-explanatory. The relationship between the illustrator and the illustrated needs to be made explicit. This is particularly important for yet two additional reasons, one concerns the perceived nature of the illustrated (the referent), and the other concerns the possible strong appeal of the illustrator.

Concerning the referent, there is the question of what the student perceives it to be. What the students see is, say, three aggressive youngsters, the life history of a specific person named Brian Harris (D102-10), or how to get to the tower in Edinburgh (M101-2). But do they understand that the real referent of each of these illustrations is not the three youths, Brian Harris or Edinburgh, but "vandalism", the "influence of society on one's life", and $(a + b)^6$ respectively? There is a fair likelihood that they do not. It is quite possible that for a number of students such illustrations are misperceived as they are not seen as illustrating what they're supposed to but rather far more concrete (and somewhat irrelevant) referents.

Concerning the illustrations' appeal, there is another problem. A good illustration should be simple and not too involving. Complex and highly involving illustrations become independent entities rather than subservient to the more general case and thus their relationships to their referents - the general case - become lost.

Abstract ideas and processes need of course to be exemplified by visual illustrators, but there is the danger that the trees will be taken for the forest...

(b) Dramatisation. This is a mode of presentation that extracts the most important, generic or typical features of a complex process or event, and rearranges them to render a simplified, contrived and dramatic version of the original process. Susan Himmelweit called her dramatised rendition of capitalism (D102-5) "a model". That rendition is a good illustration of the more general class of dramatisations.

Dramatisations are simplified substitutes (not examples!) of the general process which they represent. While the relationship between an illustration and the illustrated is that of a single case to a class, the relationship in the case of dramatisation is one of a simplified process to a complex one. In this sense, there must be a one-to-one correspondence between the highlighted, dramatised, elements in the depiction (e.g. a bag of money) and the elements of the depicted (e.g. capital).

Dramatisations are very useful substitutes for processes which are so complex (or extended over a long time) that one could not really learn their essential nature without simplification and highlighting. But this virtue is also the drawback of dramatisations. Learners can easily come to believe that the simplified dramatisation is "the real thing". Since a dramatisation (as is the case with D102-5 to D102-8) is but a substitute, it might be helpful to introduce the complex referent, once the dramatisation has been understood, such that the students can see the isomorphism between substitute and referent. Such indeed could have been done for example in D102-6 where students

should have seen the way cooperatives evolve first in the dramatisation and then in real life.

(c) Supplantation. This is perhaps the most important, yet least self-evident function of TV's pictorial capacities. To understand this function we have to assume that students often map complex and abstract ideas onto specific images which they either already have or which they can conjure up in their minds. These images are often of vital importance for the comprehension of a new idea (e.g. "the interdependence of social forces"; "rotations of shapes").

But often, particularly when complex new ideas, constructs and processes, are verbally introduced, students neither have appropriate corresponding images nor can they generate them on their own. TV can (and has been shown to) accomplish the critical function of explicitly providing the students with appropriate images as substitutes for the ones that they would benefit from but could not generate on their own. This function of visual "supplantation" facilitates learning particularly welll when the images so supplanted are of ongoing multivariate novel processes (e.g. "iteration").

One needs to distinguish here between the supplantation of a process, an image of which the students can't generate on their own, and the supplantation of a static end state of a process. While the latter can easily and inexpensively be accomplished by printed pictures, the former cannot, thus making film and TV quite unique in this capacity.

When processes are overtly supplanted, as in the case of stepwise breaking down the formula $(a+b)^6$ in M101-2, or the rotation of shapes in M101-3, the students are saved the effort-demanding task of creating the image on their own. They can, however, repeat the process in their imagination later on without the need to observe the actual

process again. Frequent repetition of such classes of operations has been shown to actually teach the students how to carry them out mentally on their own.

Many of the basic constructs discussed in D102 could probably be better understood if their introduction would be accompanied by contrived, animated images. Thus, for example, there are numerous illustations, dramatisations and graphic displays in D102-8 which may supplant static states of the various factors leading industries into crises. But to understand how the various factors, inside industry, in the British economy, and the international economic situation fit together, one would need an animated simultaneous depiction of all the process-components. It is the relationship between factors operating in a vicious circle that the program wishes the students to understand, but expects them to create an integrated image on their own.

The case of the cooperative (D102-6) is similar. Whereas the construct of a capitalist economy is partly supplanted by a dynamic animation, the construct of the cooperative is not, and thus the comparison between the two is left to the student.

As in the preceding cases, also supplantation has its drawbacks. One drawback of particular importance is that a presentation may supplant too much, that is - be too explicit and "spoon feed" those students that could generate the necessary images on their own. As research shows, students who do not need explicit supplantation of a process perform less well when it is presented to them too explicitly. Thus, one is well advised to overtly supplant images at the earlier stages of teaching an idea, supplanting the same processes less and less later on.